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App. No. 10/522,488
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IN THE CLAIMS

Amendments to the Claims:

This listing of claims will replace all prior versions and listing of claims in the application.

Claim 1 is amended.

Listing of Claims:

1. (CURRENTLY AMENDED) A method for producing Group-III-element nitride single crystal, comprising:

reacting at least one Group III element selected from the group consisting of gallium (Ga), aluminum (Al), and indium (In) with nitrogen (N) in a mixed flux containing sodium (Na) and at least one of an alkali metal (other than Na) and an alkaline-earth metal, thereby causing Group-III-element nitride single crystal to grow,

wherein a ratio of the alkali metal (other than Na) and the alkaline-earth metal to a total of the sodium (Na), the alkali metal (other than Na), and the alkaline-earth metal is in a range from 0.1 to 30 mol%.

2. (PREVIOUSLY PRESENTED) The method according to claim 1, wherein the Group III element is gallium (Ga), and the Group-III-element nitride single crystal is gallium nitride (GaN) single crystal.

3. (PREVIOUSLY PRESENTED) The method according to claim 1, wherein the mixed flux is a mixed flux of sodium (Na) and calcium (Ca).

4. (PREVIOUSLY PRESENTED) The method according to claim 1, wherein the mixed flux is a mixed flux of sodium (Na) and lithium (Li).

5. (PREVIOUSLY PRESENTED) The method according to claim 1, wherein the mixed flux is a mixed flux of sodium (Na), calcium (Ca), and lithium (Li).

6. (PREVIOUSLY PRESENTED) The method according to claim 1, wherein the reaction is carried out under conditions of a temperature of 100°C to 1200°C and a pressure of 100 Pa to 200 MPa.

7. (PREVIOUSLY PRESENTED) The method according to claim 1, wherein nitrogen (N) containing gas is used as a nitrogen source.

8. (PREVIOUSLY PRESENTED) The method according to claim 7, wherein the nitrogen (N) containing gas is at least one selected from the group consisting of nitrogen (N_2) gas, ammonia (NH_3) gas, and a mixed gas containing the nitrogen (N_2) gas and the ammonia (NH_3) gas.

9. (PREVIOUSLY PRESENTED) The method according to claim 1, wherein the single crystal is transparent.

10. (PREVIOUSLY PRESENTED) The method according to claim 1, wherein a Group-III-element nitride is provided beforehand, and the Group-III-element nitride is brought into

contact with the mixed flux to cause new Group-III-element nitride single crystal to grow using the Group-III-element nitride as a nucleus.

11. (PREVIOUSLY PRESENTED) The method according to claim 10, wherein the the Group-III-element nitride that serves as the nucleus is single crystal or amorphous.

12. (PREVIOUSLY PRESENTED) The method according to claim 10, wherein the Group-III-element nitride that serves as the nucleus is in a form of a thin film.

13. (PREVIOUSLY PRESENTED) The method according to claim 12, wherein the thin film is formed on a substrate.

14. (PREVIOUSLY PRESENTED) The method according to claim 10, wherein a nitride is present in the mixed flux at least at an initial stage of the reaction.

15. (PREVIOUSLY PRESENTED) The method according to claim 14, wherein the nitride is at least one selected from the group consisting of Ca_3N_2, Li_3N, NaN_3, BN, Si_3N_4, and InN.

16. (ORIGINAL) The method according to claim 1, wherein the mixed flux contains an impurity as a dopant.

17. (ORIGINAL) The method according to claim 16, wherein the impurity is at least one selected from the group consisting of carbon (C), oxygen (O), silicon (Si), alumina (Al_2O_3),

indium (In), aluminum (Al), indium nitride (InN), silicon oxide (SiO_2), indium oxide (In_2O_3), zinc (Zn), magnesium (Mg), zinc oxide (ZnO), magnesium oxide (MgO), and germanium (Ge).

18. (PREVIOUSLY PRESENTED) Group-III-element nitride single crystal obtained by the method according to claim 1,

wherein the single crystal is transparent and has a dislocation density of $10^5/cm^2$ or less.

19. (PREVIOUSLY PRESENTED) Group-III-element nitride single crystal obtained by the method according to claim 1,

wherein the single crystal is transparent and has a maximum diameter of at least 2 cm.

20. (PREVIOUSLY PRESENTED) A semiconductor device comprising a semiconductor layer,

wherein the semiconductor layer is formed of the Group III-element nitride transparent single crystal according to claim 18.

21. - 60. (CANCELLED)

61. (PREVIOUSLY PRESENTED) The method according to claim 1, wherein the mixed flux is a mixed flux of sodium (Na) and alkali metal other than Na.

62. (PREVIOUSLY PRESENTED) The method according to claim 1, wherein the mixed flux is a mixed flux of sodium (Na) and calcium (Ca), and the growth of the single crystal is performed at a pressure of 1.5 to 3 MPa.

63. (PREVIOUSLY PRESENTED) A semiconductor device comprising a Group III-element nitride thin film that is grown by using Group-III-element nitride transparent single crystal according to claim 18 as a substrate.

64. (PREVIOUSLY PRESENTED) The method according to claim 3, wherein sodium and calcium are blended, so that a mole ratio of sodium to calcium is in a range of 9.75:0.25 to 7:3 with respect to 1 g of the Group III-element.